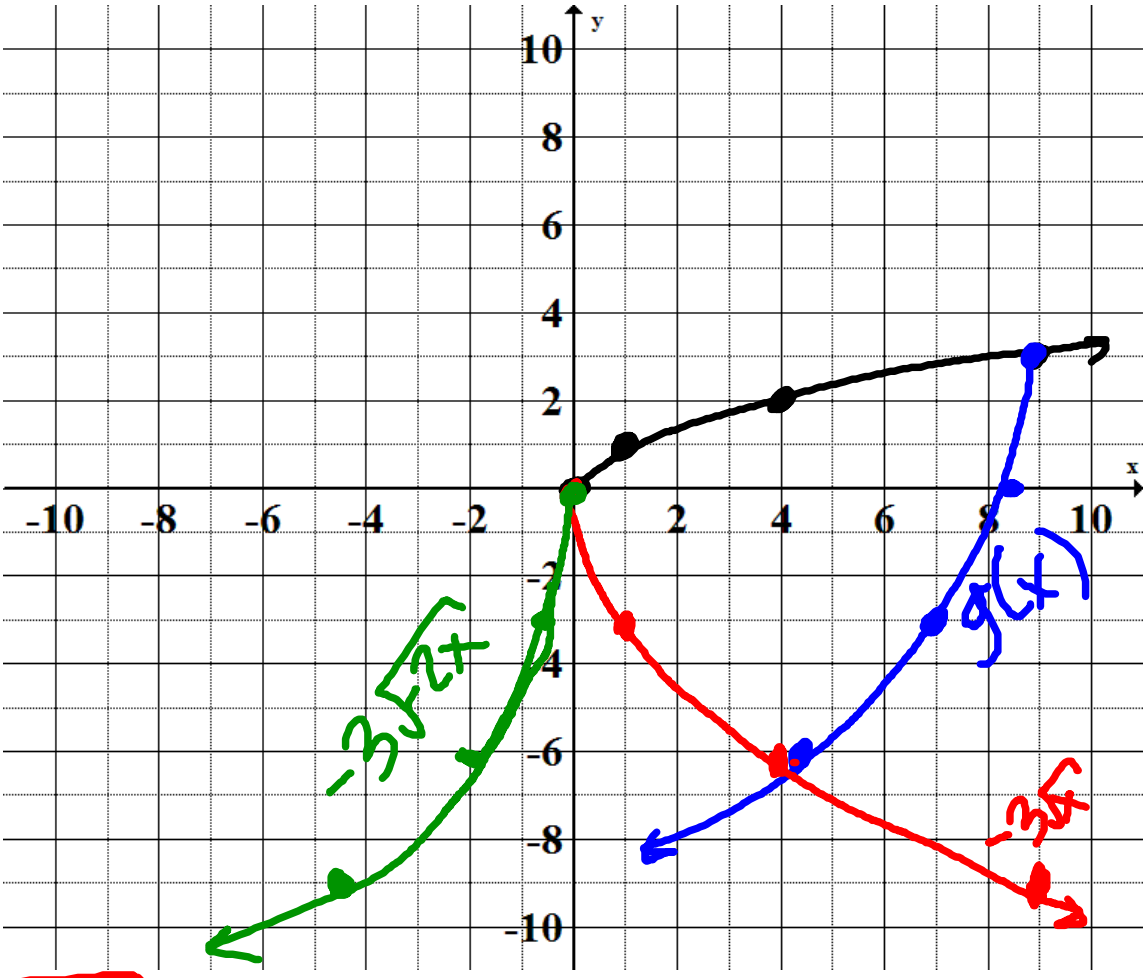
Name: _____ Date: _____

Using Transformations to Graph Functions - Exit Card

Given the function $g(x) = -3\sqrt{-2(x-9)} + 3$

a) Identify and graph its parent function on the axes provided.
b) Graph *g(x)* on the axes provided.
c) List the transformations you applied to the parent function, **in order**, to properly plot *g(x)*.
d) List any invariant points between your two functions.
e) State the domain and range of *f(x)* using proper notation.
f) State the domain and range of *g(x)* using proper notation.
g) Determine the equation of the inverse of this function.
h) Graph the inverse.



a = -3. Vertical stretch by a factor of 3 and reflect in the x-axis.

k = -2. Horizontal compression by a factor of 2 and reflect in the y-axis

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Use the space below to show your work.

$d = 9$. shift the curve right 9 units

$c = 3$: shift curve up 3 units

Invariant: $(9, 3)$

$f(x)$

$$\text{Domain} = \{x \in \mathbb{R} \mid x \geq 0\}$$

$$\text{Range} = \{f(x) \in \mathbb{R} \mid f(x) \geq 0\}$$

$g(x)$

$$\text{Domain} = \{x \in \mathbb{R} \mid x \leq 9\}$$

$$\text{Range} = \{g(x) \in \mathbb{R} \mid g(x) \leq 3\}$$